IN THE US PATENT & TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS & INTERFERENCES

APPLICANT:	WEISSER	ATT'Y DOCKET:	870-003-174
SERIAL #:	10/ 506,477	CONF. #:	3038
FILED:	1 SEP. 2004		
EXAMINER:	V. DWIVEDI	ART UNIT:	3746

BRIEF ON APPEAL (REVISED)

Commissioner for Patents
PO BOX 1450
ALEXANDRIA VA 22313

27 MAY 2008

Sir:

This document responds to Form PTOL-462 mailed 27 MAR. 2008. Applicant requests a 1-mo. extension of the response term, to and including MAY 27, 2008. Charge any fee deficiency to Dep. Acct. 23-0442.

I REAL PARTY IN INTEREST

The real party in interest is EBM-PAPST ST. GEORGEN GmbH & Co. KG, the assignee by virtue of an assignment recorded 29 SEP. 2004 at Reel 15 199, Frame 0070.

II RELATED APPEALS & INTERFERENCES

There are believed to be no related appeals or interferences.

III STATUS OF CLAIMS

Independent claim 1 and its dependent claims 2-19 are pending. All claims are rejected. The claims retain their original wording, published 9 JUN. 2005 in US 2005-123 423-A1.

All of claims 1-19 are the subject of this appeal.

IV STATUS OF AMENDMENTS

A first amendment, to the specification, was filed 4 JUN. 2007 and has been entered. A further response and explanation dated 27 AUG. 2007 was submitted, but did not amend the claims. A Request for Panel Review was filed 5 DEC. 2007, but

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The undersigned hereby certifies that this document is being submitted via EFS-WEB on MAY 27, 2008.

/Milton M. Oliver/

did not result in any modification of the Examiner's rejection.

V SUMMARY OF THE CLAIMED SUBJECT-MATTER

Motors are susceptible to short circuits and other malfunctions if excessive water achieves ingress into them. Therefore, depending upon the intended industrial application, applicable industrial standards (such as DIN 40 050) require different levels of Ingress Protection (IP). For example, IP23 requires that the motor be somehow protected against water sprayed **vertically, or obliquely up to an angle of 60 degrees** to the vertical. The more stringent IP44 requires that the motor be somehow protected against splash water **from all directions**. Absolute protection against water ingress, i.e. complete fluid-tightness, cannot be achieved, as a practical matter, because some motor components are stationary, while a rotor turns during operation, and sealing at the interface between the stationary and rotating components is very difficult. Main claim 1 recites, in pertinent part, "a pot-shaped part ... forming a substantially fluid-tight annual space enclosing said internal stator and having a wall which extends in the manner of a canned motor through said air gap between the internal stator and the external rotor." Specification pages 5-6 describe a first embodiment of this structure, while pages 7-8 describe a second embodiment of this structure.

VI GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The Action of 5 SEP. 2007 finally rejected claims 1-3 and 13-15 under section 102(b) as anticipated by SAITO USP 5,979,541. The Action of 5 SEP. 2007 finally rejected claims 4-5, 15 and 17 as either anticipated by, or obvious over, SAITO USP 5,979,541. The Action of 5 SEP. 2007 finally rejected claims 6-12, 16, 18 and 19 as unpatentable over SAITO in view of YOKOZAWA USP 5,650,678 and BLUMENBERG USP 5,650,676.

VII ARGUMENTS

SEC. 102(b) REJECTION BASED UPON SAITO USP 5,979,541

Claims 1-3 and 13-15 were rejected as anticipated under §102(b).

SAITO shows a cooling fan with a motor type commonly called a "claw pole" motor. As shown in FIG. 4, the stator 6 has a bobbin 64, having a coil 63 that is wound therearound, which bobbin 64 is supported in an interior of a yoke 62 (cf. col. 5, lines 53 - 55). The yoke 62 is shown in detail in FIG. 6. It has a first (upper) yoke 621 and a second (lower) yoke 624. The first yoke 621 has a disk-shaped first base part 622 and four first claw parts 623 provided in the outer periphery of the first base part 623 and extending downwardly. The second yoke 624 is constructed accordingly, and has four second claw parts 626 extending upwardly and engaging with the four first claw parts 623, cf. col. 5, lines 34 - 45. The operation of the claw pole motor is described at col. 8, lines 10 - 22.

According to col. 5, lines 45 - 48, "the first yoke 621 and the second yoke 624 are arranged as to engage without having the first claw parts 623 and the second claw parts 626, which extend in opposite directions, come into contact", i.e., it is taught that there is a space between the first and second claw parts, as shown in FIG. 6. This space between the first and second claw parts is necessary, because a contact between the first and second claw parts would result in a magnetic short circuit, making the motor inoperative or severely detracting from its efficiency. Thus, it is clear that fluids may pass from outside through the space between the first and second claw parts to the inside, i.e. the bobbin 64 and the coil 63. See annotated version of SAITO FIG. 4, attached. This sketch was previously submitted on 4 JUN. 2007 to the Examiner.

Therefore, SAITO does not describe a "pot-shaped part, forming a substantially fluid-tight annular space enclosing said internal stator" as recited in present independent claim 1. Instead, it seems that the Office interprets the section of the yoke 62 in FIG. 4 as belonging to a closed structure. This interpretation by the Office,

however, absolutely contradicts the description and FIG. 6 of SAITO. Further, there is no basis for the contention, on page 2 of the Final Rejection, that SAITO yoke part 62 is "forming a substantially fluid-tight annular space enclosing said internal stator 6." This is merely an incorrect attempt to the language of claim 1 onto the SAITO structure. The rejection fails to make a prima facie case of anticipation with respect to claim 1, and must be reversed.

Dependent claims 13-15 further elaborate upon the basic structure recited in main claim 1, by reciting additional features. Claim 13 recites that the pot-shaped part is integrally formed with the fan housing 2. Claim 14 recites that the base 46, connected to the bearing support tube 24, is integrally formed with the fan housing 2. Claim 15 recites that a fluid-tight connection between the pot-shaped part 58,70 and the base 46 is achieved by adhesion. Since SAITO fails to anticipate the structure of parent claim 1, it is readily apparent that SAITO completely fails to anticipate the further-elaborated structure recited in claim 13 or 14 or 15. The §102(b) rejection of claims 13-15 must therefore also be reversed.

REJECTION OF CLAIMS 4-5, 15 & 17 UNDER SEC. 102(b) or 103(a).

Claims 4-5, 15 and 17, all dependent directly upon main claim 1, were rejected as anticipated by SAITO or "in the alternative, as obvious over SAITO." These dependent claims are directly to specific ways (e.g. configurations which facilitate welding) of achieving the substantial fluid-tightness recited in main claim 1. Although the Examiner contends, on page 3 of the Final Rejection, that the "specification does not state this limitation as serving any advantage or particular purpose or solving any stated problem," the Examiner apparently overlooked specification page 8, second full paragraph, which reads:

> "An advantage of the invention is that, with this arrangement, one can manufacture cost-effectively in an environmentally responsible manner. There are enormous savings in materials and time, and short cycle times on the production line. Further, in the

> manufacture of the stators, and the associated necessary Ingress Protection (IP), no polyurethane potting compounds or associated tools are needed. Defects such as blowholes, fissures, and voids, which occur with the conventional methods, are avoided. Subsequent time-consuming reworking is thus also avoided. Further, this method is well adapted for mass production, since it can be quickly and efficiently adapted for making varied models."

The Examiner cites the decision In re Thorpe, 227 USPQ 964 (Fed. Circ. 1985) for the proposition that a product made by a process "is unpatentable if the claimed product is the same as a product of the prior art" implying that the structure of claim 1 is "the same as" the SAITO product which, as already demonstrated above, is completely inaccurate. Further, dependent claim 5 recites that "the pot-shaped part has a welding bead for formation of a welded connection" which is a structural feature illustrated in FIG. 3, not a "process limitation" as erroneously contended by the Examiner. The SAITO disclosure neither suggests the desirability of a substantially fluid-tight separation between motor portions, nor (even silently) teaches a structure which would inherently have such characteristics, so it cannot reasonably be contended that SAITO either anticipates or suggests the subject-matter of dependent claims 4, 5, 15, and 17. The rejection must be reversed.

REJECTION OF CLAIMS 6-12, 16, 18 & 19 UNDER SEC. 103(a)

Claims 6-12, 16, 18 & 19 are dependent upon main claim 1. Pages 4-5 of the Final Rejection finally rejected these dependent claims as obvious over a combination of SAITO/EPSON with YOKOZAWA/SANKYO (US 5,650,678) and BLUMENBERG/LICENTIA (US 5,650,676). The YOKOZAWA and BLUMENBERG secondary references are apparently cited for their respective showings of a "bearing holder" (see Final Rejection page 4, line 8) and a "retaining clip" (see Final Rejection page 5, lines 5-6), on the continued (erroneous)

assumption that SAITO (as the primary reference) meets all the other features recited in parent claim 1. The Final Rejection fails to explain why the YOKOZAWA structure, selected from among thousands of bearing structures known in the motor art, would bring the SAITO structure any closer to the structure recited in main claim 1 or dependent claim 6, or why the artisan would be motivated to try to combine these particular structures. The Final Rejection similarly fails to explain what the "detent hooks 57" (BLUMENBERG FIG. 1, top, and col. 3, line 13) located at the housing periphery, have to do with the retaining clip 20, recited in dependent claim 9 as engaging in a circumferential groove 48 of the rotor shaft 40, near the central axis of the motor.

Applicant respectfully submits that the addition of the YOKOZAWA bearing structure and the BLUMENBERG detent hooks 57, to the SAITO structure, as proposed by the Examiner, would not result in a structure having the recited "wall which extends in the manner of a canned motor through said air gap between the internal stator and the external rotor." Therefore, pages 4-5 of the Final Rejection fail to make a prima facie case of obviousness under section 103(a) against dependent claims 6-12, 16, 18 and 19. The rejection must therefore be reversed.

Applicant respectfully submits that the structures recited in present main claim 1, and its dependent claims 2-19, provide an unusually cost-effective and environmentally responsible teaching of how to mass-produce a motor which satisfies safety standards like IP23 and IP44, as described on specification page 1, and therefore patentably distinguish over the cited prior art. Reversal of the Final Rejection of 5 SEP. 2007, and passage to allowance, are solicited.

VIII CLAIMS APPENDIX

1. A fan, comprising:

an external-rotor motor (103) having an internal stator (22) and an external rotor (34) separated therefrom by an air gap (52);

a bearing support tube (24) mounted on a base (46), the internal stator (22) being mounted on the support tube (24);

and

a pot-shaped part (4, 56; 58, 70) having one end connected to said base (46), forming a substantially fluid-tight annular space (54) enclosing said internal stator (22), and having a wall (56; 70) which extends in the manner of a canned motor through said air gap (52) between the internal stator (22) and the external rotor (34).

2. The fan of claim 1, wherein

an end of said bearing support tube (24) which is remote from said base (46) extends to a portion (6; 68) of said pot-shaped part (4; 68) and forms a substantially fluid-tight connection therewith, particularly by a plug-in connection.

3. The fan of claim 1, wherein the base (46) forms a substantially fluid-tight connection (10') with a fan housing (2).

4. The fan of claim 1, wherein said base (46) is fluid-tightly connected to the fan housing (2) by ultrasonic welding.

5. The fan of claim 1, wherein

said pot-shaped part (4; 56) has a welding bead (10) for formation of a welded connection.

6. The fan of claim 1, wherein said bearing support tube (24) is formed with a recess (14) in which

a spacer (18),

a retaining element (20) for securing the shaft (44; sic), and

a plurality of rotary bearings (16)

are provided.

7. The fan of claim 6, wherein said recess (14) of the bearing support tube (24) is configured as a blind bore (14).

8. The fan of claim 6, wherein the recess (14) of the bearing support tube (24) is so configured, at its closed end, that it radially guides a retaining clip (20) placed therein.

9. The fan of claim 6, wherein

the rotor is configured as an external rotor (34) with a rotor bell (38) onto which a rotor shaft (40) is secured;

between the rotor bell (38) and an inner ring of one of the rotary bearings (16), a spring (44) is provided, which is compressible during assembly, to facilitate engagement of a retaining clip (20) placed in the recess (14) of the bearing support tube (24) into a circumferential groove (48) formed on the rotor shaft (40).

10. The fan of claim 9, wherein the retaining clip (20) has at least one detent hook (21) which, in an assembled state, engages into the circumferential groove (48) formed on the rotor shaft (44; sic).

11. The fan of claim 1, wherein

the motor is an electronically commutated motor (103) whose rotor (34) has a rotor magnet (36) and has a stator (22) with a stator lamination stack (26), the stator being arranged, at least partially, radially inside the rotor magnet (36).

12. The fan of claim 11, wherein the rotor (34) is arranged substantially in magnetic equilibrium relative to stator lamination stack (26), in order to reduce or avoid any axially directed magnetic force between rotor (34) and stator (22).

13. The fan of claim 1, wherein

the pot-shaped part (6; 56) is integrally formed with the housing (2) of the fan.

14. The fan of claim 1, wherein

the base (46) connected to the bearing support tube (24) is integrally formed with the housing (2) of the fan.

15. The fan of claim 1, wherein

a fluid-tight connection between the pot-shaped part (58, 70) and base (46) is achieved by adhesion.

16. The fan of claim 1, wherein

the rotor (34) has a shaft (40) which is axially fixed by a securing ring (60) which engages into a circumferential groove of the shaft (40).

17. the fan of claim 1, wherein

a fluid-tight connection between the pot-shaped part (58, 70) and base (46) is achieved by welding.

18. The fan of claim 2, wherein said bearing support tube (24) is formed with a recess (14) in which a space (18), a retaining element (20) for securing the shaft (40) and a plurality of rotary bearings (16) are provided.

19. The fan of claim 18, wherein said recess (14) of the bearing support tube (24) is configured as a blind bore (14).

IX EVIDENCE APPENDIX

Appended hereto is a copy of FIG. 4 of SAITO, marked-up with an arrow to indicate how water could freely penetrate this structure, contrary to the Examiner's assertion that SAITO defines "a substantially fluid-tight annular space enclosing said internal stator" as recited in claim 1 of the present application.

X RELATED PROCEEDINGS APPENDIX

There are believed to be no related proceedings.

Applicant respectfully urges the Board to reverse the Final Rejection of claims 1-19, and to pass the application to allowance.

Respectfully submitted,
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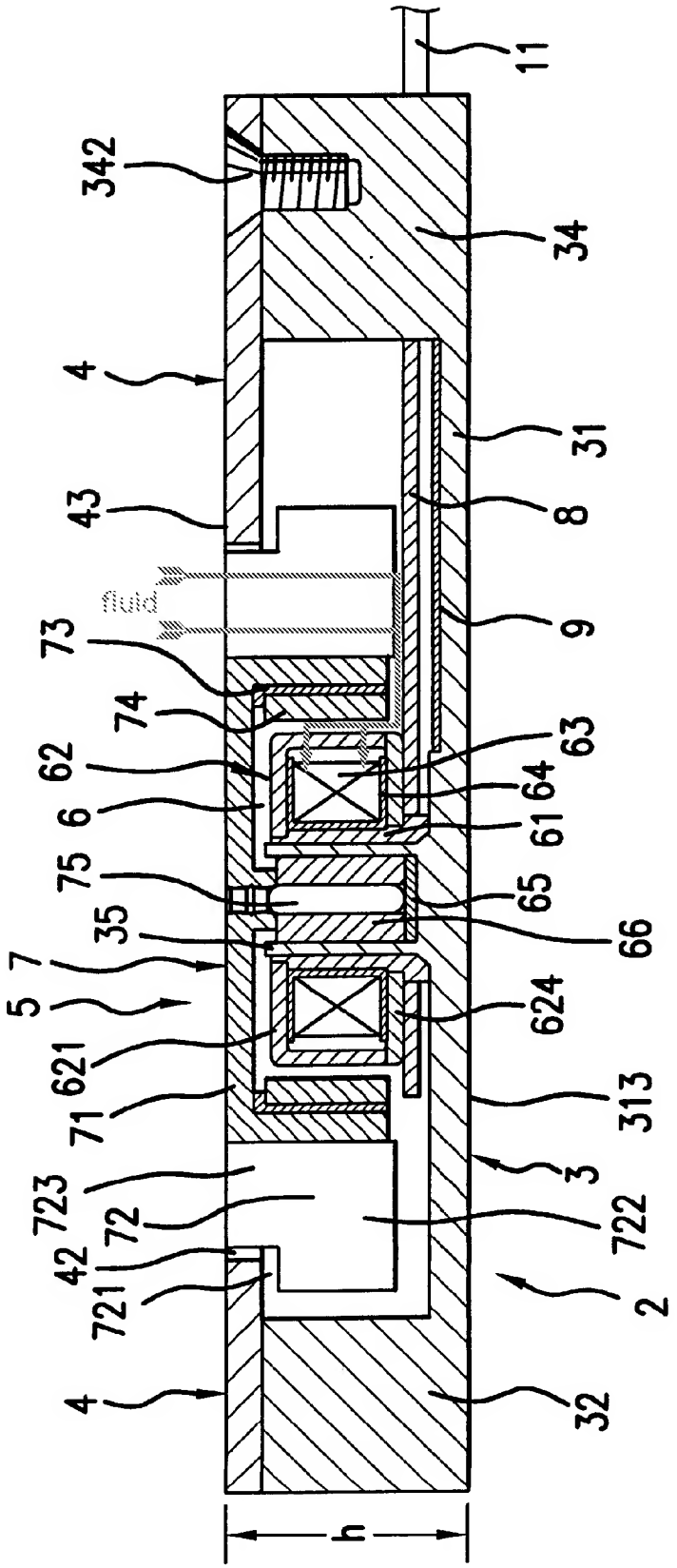
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FIG. 4